

CLAIMS

We claim:

1. A method of producing a reverse image mask comprising the steps of:
 - depositing a metallic layer on a substrate;
 - applying resist on the metallic layer to pattern desired features;
 - plating the metallic layer with a metal film;
 - stripping the resist; and
 - etching the metallic layer using the metal film as a mask.
2. The method of claim 1 wherein depositing the metallic layer on the substrate comprises depositing chrome on the substrate.
3. The method of claim 1 wherein the substrate has an attenuated layer deposited thereon.
4. The method of claim 1 wherein the substrate comprises a glass substrate.
5. The method of claim 1 wherein the substrate comprises a quartz substrate.
6. The method of claim 1 wherein the metal film comprises copper.
7. The method of claim 1 wherein the metal film comprises nickel.

1 8. The method of claim 1 wherein applying resist on the metallic layer to pattern design
2 features comprises printing a reverse pattern in positive tone resist.

1 9. The method of claim 1 further comprising the step of etching the metal film to provide
2 the reverse image mask.

1 10. The method of claim 1 wherein plating the metallic layer with a metal film comprises
2 electroplating copper to the metallic layer in areas not covered by the resist pattern.

1 11. The method of claim 1 wherein applying resist on the metallic layer further comprises
2 applying assist features proximate the desired features.

3 12. A method of producing a correct negative reticle with positive tone resist comprising
4 the steps of:

5 depositing an opaque metallic layer on a transparent substrate;

6 printing a reverse pattern of positive tone resist on the opaque metallic layer
7 to pattern desired features;

8 plating the opaque metallic layer with copper in non-patterned areas;

9 stripping the resist; and

10 etching the opaque metallic layer using the copper in the non-patterned areas
11 as a mask.

1 13. The method of claim 12 wherein depositing an opaque metallic layer on a transparent
2 substrate comprises depositing chrome on the transparent substrate.

1 14. The method of claim 12 wherein the substrate comprises a glass substrate.

1 15. The method of claim 12 wherein the substrate comprises a quartz substrate.

1 16. The method of claim 12 further comprising the step of etching the copper to provide
2 the correct negative reticle.

1 17. The method of claim 12 wherein plating the opaque metallic layer with copper
2 comprises electroplating copper to the opaque metallic layer in the non-patterned areas.

1 18. The method of claim 12 wherein printing a reverse pattern of positive tone resist on
2 the opaque metallic layer further comprises applying assist features proximate the desired
3 features.

1 19. A method of producing a reverse image mask comprising the steps of:
2 depositing an opaque metallic layer on a substrate;
3 applying resist on the opaque metallic layer to pattern desired features;
4 plating the opaque metallic layer with a metal film;
5 stripping the resist; and

1 etching the opaque metallic layer using the metal film as a mask.

1 20. The method of claim 19 wherein depositing the opaque metallic layer on a substrate
2 comprises depositing chrome on the substrate.

1 21. The method of claim 19 wherein the substrate has an attenuated layer deposited
2 thereon.

1 22. The method of claim 19 wherein the substrate comprises a glass substrate.

1 23. The method of claim 19 wherein the substrate comprises a quartz substrate.

1 24. The method of claim 19 wherein the metal film comprises copper.

1 25. The method of claim 19 wherein the metal film comprises nickel.

1 26. The method of claim 19 wherein applying resist on the opaque metallic layer to pattern
2 design features comprises printing a reverse pattern in positive tone resist.

1 27. The method of claim 19 further comprising the step of etching the metal film to
2 provide the reverse image mask.

1 28. The method of claim 19 wherein plating the opaque metallic layer with a metal film
2 comprises electroplating copper to the opaque metallic layer in areas not covered by the resist
3 pattern.

1 29. The method of claim 19 wherein applying resist on the opaque metallic layer further
2 comprises applying assist features proximate the desired features.

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